Received: 9 July 2018 | Revised: 15 November 2018 | Accepted: 28 November 2018

DOI: 10.1002/jgf2.227

IMAGES IN CLINICAL MEDICINE

Journal of General and Family Medicine Open Access WILEY

Birt-Hogg-Dubé syndrome in the elderly

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KEYWORDS: genetic diseases, pneumothorax

A 73-year-old woman was referred for treatment of left pneumothorax. One month prior to presentation, she had complained of dry cough and dyspnea. The patient was a non-smoker with no previous episodes of pneumothorax, but her family history was significant for pneumothorax in her brother. A chest radiograph confirmed left large pneumothorax (Figure 1A). A left chest tube was placed and was eventually removed on day 7 in the hospital. Two weeks later, she presented with a recurrence of left pneumothorax. After tube thoracostomy, chest computed tomography (CT) showed multiple, irregularly shaped cysts of various sizes predominantly in the bilateral medial lung zone (Figure 1B). Given the family history of pneumothorax and chest radiographic findings, Birt-Hogg-Dubé syndrome was suspected. Further examination revealed multiple papules on her right cheek, and abdominal CT scan showed simple cysts in her left kidney. Informed consent for genetic testing was obtained from the patient; FLCN sequence analysis identified a mutation in the exon 13, that is, c.1522_1524delAAG (p.Lys508del). The patient's clinical course was complicated by a prolonged air leak, and she underwent bullectomy of the lingua by video-assisted thoracoscopy. Six months after surgery, she presented with right small pneumothorax, but it spontaneously resolved while she was under observation.

Birt-Hogg-Dubé (BHD) syndrome is a rare autosomal dominant disorder characterized by skin hamartomas, renal tumors, and multiple lung cysts. BHD syndrome is caused by germline mutations in the folliculin gene, which is located on chromosome 17 and can be inherited. The phenotype of BHD syndrome is highly heterogeneous, thus contributing to challenges in diagnosis. In 89 patients with BHD syndrome, 90% had skin lesions, 34% had renal tumors, 84% had pulmonary cysts, and 38% had a history of pneumothorax.[1] Classic cutaneous lesions and multiple benign follicle hamartomas on the face generally develop in the early 20s, and one or more episodes of spontaneous pneumothorax commonly occur before the age of 40. Renal malignancies arise much later than the skin or pulmonary manifestations, typically around the age of 50.[2]

The differential diagnosis of lung manifestations associated with BHD syndrome includes chronic obstructive pulmonary disease (COPD), Langerhans cell histiocytosis (LCH), and lymphangioleiomyomatosis (LAM). COPD is the most common cause of spontaneous pneumothorax. The apical location of air blebs and absence of true thin-walled cysts on high-resolution computed tomography (HRCT) are important. LCH is an interstitial lung disease that primarily affects young adult smoker. On HRCT of the chest, multiple cysts and nodules with upper lobe predominance and interstitial thickening are diagnostic of LCH. LAM affects predominantly women of reproductive age and is characterized by diffuse, small, thin-walled cysts scattered throughout both lung fields. Although younger onset of pneumothorax is more common in BHD syndrome, the characteristic chest CT findings (irregularly shaped, thin-walled pulmonary cysts, located in the basilar medial regions of the lungs) may contribute to the diagnosis of this disorder in spontaneous pneumothorax of the elderly.

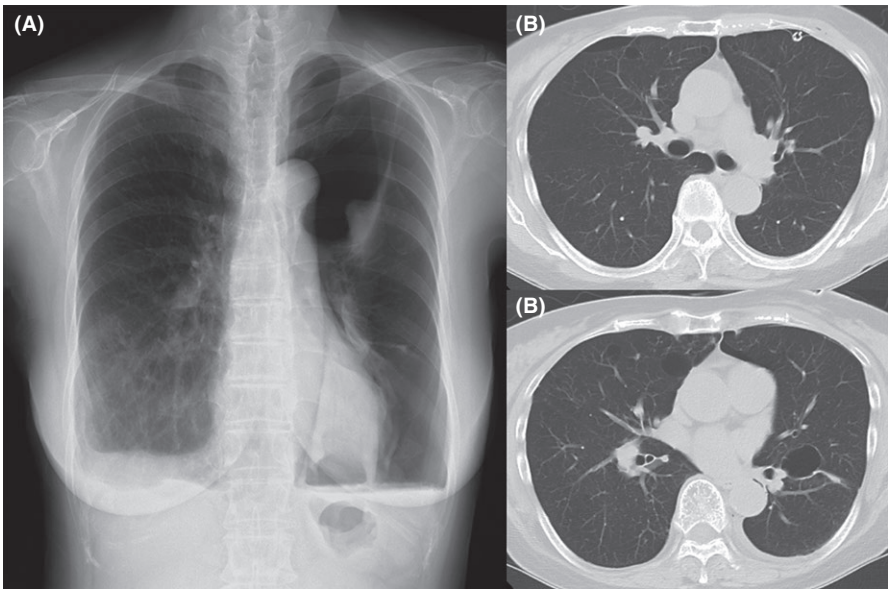

FIGURE 1 A, Chest radiograph on presentation; B, chest CT after tube thoracostomy on recurrence of left pneumothorax

INFORMED CONSENT

We obtained the patient's informed consent to conduct this study and for publication.

AUTHOR CONTRIBUTION

All the authors made substantial contribution to the preparation of this manuscript. MI and SM drafted the manuscript and performed literature search. JI provided input on patient management. YK and TI played a role in editing the article and make it more concise.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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How to cite this article: Inoue M, Miyazaki S, Kuno Y, Ishida J, Ikeda T. Birt-Hogg-Dubé syndrome in the elderly. *J Gen Fam Med*. 2019;20:72–73. https://doi.org/10.1002/jgf2.227